

BOOK REVIEWS

The Callaphidini of Canada. W. R. Richards. Mem. Ent. Soc. Canada No. 44, 1965, 149 pp., 189 figs., 40 maps.

This remarkable piece of work on the Canadian fauna of the Callaphidini (Homoptera: Aphidoidea) comprises forty species in sixteen genera. An interesting theory on apparent structural intersexuality of the viviparous forms and apparent sex reversal in other morphs is presented, and progressive neoteny is assumed to be the basic trend in the phylogeny of all groups. Several new criteria are introduced as distinguishing characters, e.g. anterior and posterior discals on head and prothorax and the separation of the cornicle from the lateral sclerite. The keys are provided with mostly only one differential in the couplets. They would be easier to use if they included several features for both adult and immature forms. Illustrations are of good quality, but it would have been better to show also part of the ventral side of the specimens so that the coxae and the rostrum would be seen. Also, the antennae, with distribution of setae and rhinaria, are not represented. The drawings of first instar larvae are lacking detail since antennae, cornicles and setation of the anal segment are not shown. The setal pattern of the first instar of *Patchia* and *Lachnochaitophorus* are evidently incorrect because important hairs have been omitted. Distribution maps reveal that little collecting has been done so far in the vast area of Canada. Perhaps distribution of the species on the whole North American continent would have been more instructive, since very few species are strictly Canadian.

The paper excels in clearness of presentation, however certain aspects have been treated superficially. Some of the newly described species may not be valid because of insignificance of characters to distinguish them from related species. *Tuberculatus* Mordvilko seems not congeneric with *Pacificallis* n. subg. *Tuberculatus* (*Pacificallis*) *columbiae* n. sp. appears to be identical with *Tuberculoides californicus* (Baker). *Monellia caryella* (Fitch) should, according to embryonic chaetotaxy, be placed in *Monelliopsis* n. g. *Monellia microsetosa* Richards seems to intergrade with *M. costalis* (Fitch). *Monelliopsis pleurialis* n. sp. is evidently *Monellia nigropunctata* Granovsky. It was not mentioned that both *Monellia* and *Melanocallis* hold their wings horizontally on the abdomen. Therefore, *Tinocallis ulmifolii* (Monell) should not be placed in *Melanocallis*.

The phylogeny of the Callaphidini has been traced and conclusions on relationships were drawn mainly from studies of the setal patterns. Apparently too much emphasis was laid on this aspect, while others, such as the development of the fore legs into a leaping mechanism, the specialization of the rhinaria and certain differentiations in the ovipara have not been evaluated. It cannot always be agreed as to what has been considered advanced or primitive. The semicircular shape of the cauda may be primitive and not neotenic. The author's view that preservation of a "protopattern" in setation (the term is misleading, since practically all first instar larvae examined are caenogenetical) indicates advanced neoteny is basically sound. The trend in phylogeny of certain groups is well described as a struggle for dominance between the adult pattern and the protopattern. The proposed grouping of the diagram on p. 178 does, however, not satisfy, because closely related genera like *Myzocallis* and *Tuberculoides* are separated, while others without apparent relationship are brought together (e.g. *Pterocallis* and *Protopterocallis*, *Takecallis* and *Ctenocallis*). It appears sufficiently established from the author's findings that Appendisetines, Therioaphides and Tinocallidines are the most highly evolved groups of the tribe. *Tuberculoides* should not be placed with the Appendisetines, since the lateral abdominal setae of the sixth segment are well separated from the cornicle.

Examples of parallelism and convergence in the tribe are discussed and its origin and dispersal elucidated. It is hypothesized that the modern genera became established by the end of the Cretaceous period, and that they reached their present distribution at that time. A nearctic origin for this group of aphids is suggested.

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A History of Entomology. O. E. Essig. A facsimile of the original 1931 edition, The Macmillan Company, by Hafner Publishing Co., New York and London, \$16.50.

It is gratifying to see that the enterprising Hafner Publishing Company has brought out a facsimile edition of Essig's great *History of Entomology*. There is no other single volume that presents as much information about economic entomology and its development in California, the first western state to realize the importance of pest control. After an 80-page introduction to entomology in that state from the time of the Indian tribes to 1930, 450 pages are devoted to the details of what has been done to make the fields and orchards of California more productive and the cities and towns safer and more comfortable for humans. No student of economic entomology, or of insects that have economic importance anywhere, can safely overlook this most authoritative and fully documented story of the ceaseless battle between man and pests. Although the introduction of modern organic pesticides makes this 35-year-old book dated so far as control measures are concerned, it is a volume that modern control agencies must study carefully in light of the destructive side-effects of many of the new pesticides. It is quite possible that future legislation to safeguard humans and the environment will force control agencies to turn back to earlier methods of combat. The long chapter upon biological control, 125 pages, is an acute summary of what has been done, and can supply direction to what can be done with this "natural" method.

For me the most valuable part of the entire volume is Chapter IX, a small book in itself, over 250 pages of biographical data about the men whose force has been felt in Californian entomology. There are several hundred sketches, each supported with a bibliography. They treat of taxonomists and field collectors, economic entomologists, exploring entomologists, professionals and amateurs. It is a treasurehouse of information about the great founders of entomology from Linnaeus onward, those who established the study of insects in North America and those who have fostered it in the West. Not all that Essig wrote is true today, but his errors are few and rarely serious. The discovery in archives and libraries during the past three decades of the personal papers and correspondence of many 19th Century, and earlier, American entomologists has brought to light information that was not available to Essig.

Chapter X is equally important to the entomological historian. It is a chronological table "Showing the development and progress of Entomology in relation to History and other Sciences." There are 142 pages of this table, written in three columns, "Births," "Events" and "Deaths." The first entries are the birth of Columbus and Gutenberg's invention of printing with movable type. One lead to the discovery of America, the other to the rapid dissemination of knowledge. The earliest entomological event noted is the printing of Conrad von Megenberg's *Buch der Natur* in 1475. The last year contained in the calendar is 1929 with 19 entomologically important events and the deaths of H. G. Dyar, F. H. Chittenden, W. T. Clarke and C. R. Orcutt reported. A continuation of this calendar by someone well versed in the total field of entomology is a task that should be done.

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